

GE90 DEMONSTRATION OF ASPIRATING SEAL

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# ***GE90 Demonstration of Aspirating Seal***

***October 25 and 26, 2000***

**Presented at:**

**NASA Glenn Research Center  
Seal/Secondary Air System Workshop  
Cleveland, OH**

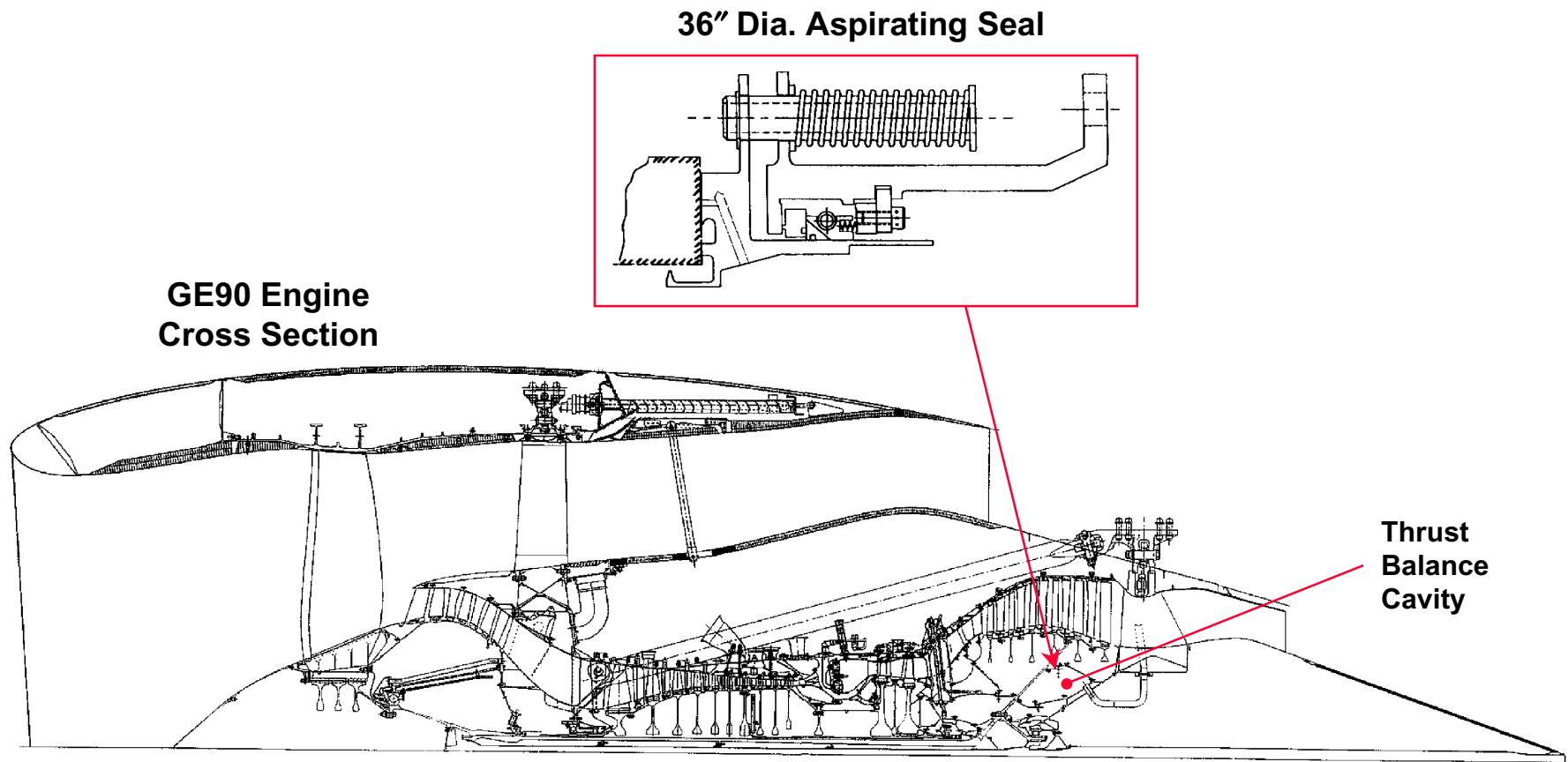
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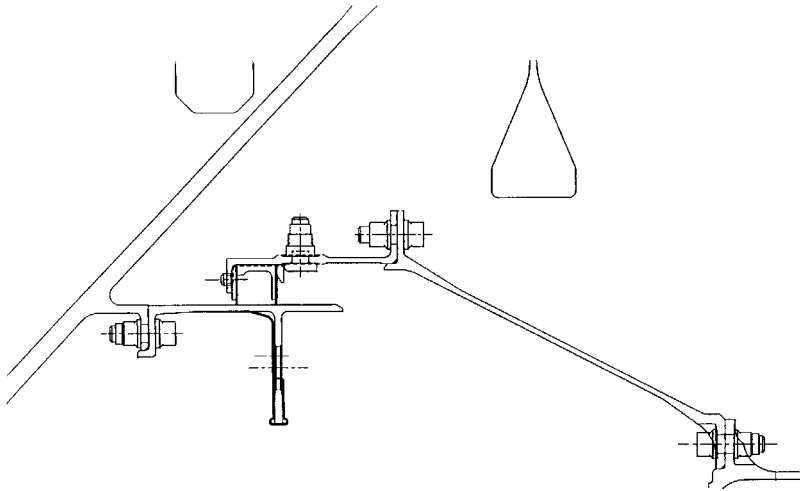
# ***Topics***

- Objective
- Aspirating seal location in GE90
- List of accomplished rig verifications tests
- Seal performance comparison
- Status of GE90 demo

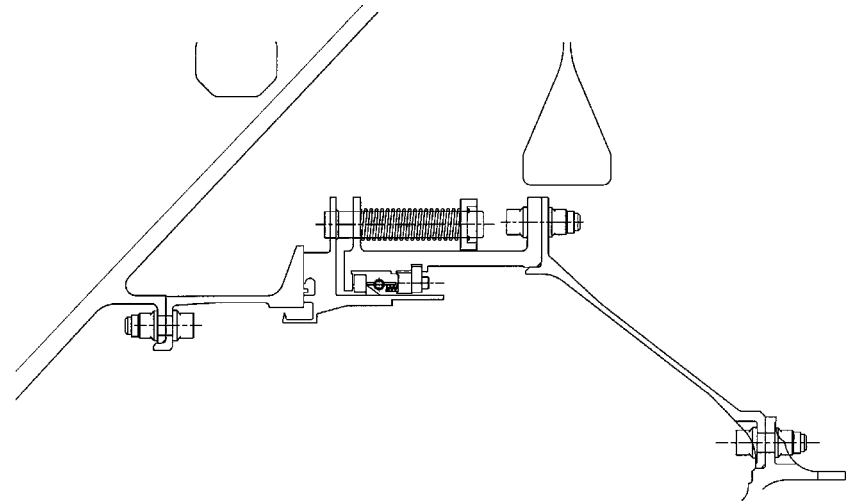
***Objective: Complete the development of aspirating seal for engine applications by demonstrating the seal in the GE90 engine after rig verification***



# ***Seal Position***



**Production**

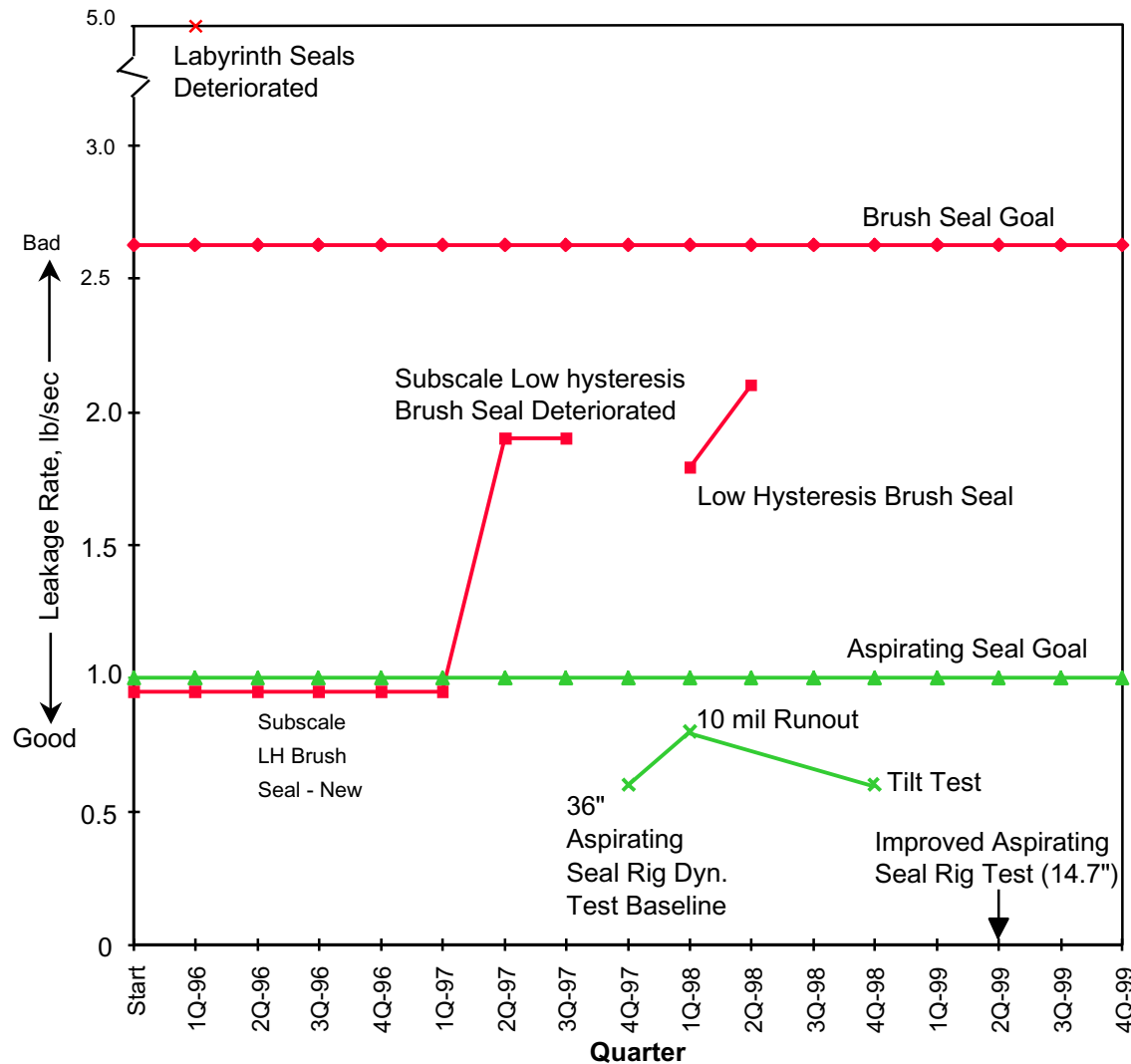


**Aspirating Seal**

# ***List of Accomplished Aspirating Rig Verification Tests***

- 15" Dia. Subscale Tests
  - 1000 hours endurance test  
(760 fps, 1000°F. 99 psid)
  - Dust Ingestion Test  
(400 fps, R.T., 100 psid)
- 36" Dia. Fullscale Rig Tests  
(400 fps, R.T., 100 psid)
  - Start/Stop Cycles
  - Runner Axial Face Runout: 5 & 10 mils
  - Simulated Maneuver Tilt

# Seal Performance Comparison



Aspirating Seal:

- Lowest leakage
- No deterioration

Leakage Rate-Goals and Status for Brush Seals (Red) and Aspirating Seals (Green).

# ***Status***

- Seal, Runner and Support Designs
- Hardware Fabrications
- Engine Demo

## Status

Complete

In Progress

December, 2001